

WHAT IS CLAIMED IS:

5            1.    A self-wound multi-layer laminate for applying a layer of color to a substrate surface, the laminate comprising:

             a dry paint layer comprising a color layer which includes a binder and a pigment, the dry paint layer having an upper  
10            surface and a lower surface,

             a pressure-sensitive adhesive layer overlying the upper surface of the dry paint layer and adapted for adhering the laminate to a substrate surface at room temperature;

             a release liner overlying the lower surface of the dry  
15            paint layer, the release liner having a matte release coat releasably adhered to the lower surface of the dry paint layer, and an adhesive release coat layer on a side of the release liner opposite from the dry paint layer, the release  
             liner and the matte release coat removable from the dry paint  
20            layer at room temperature,

             the matte release coat transferring a matte finish to an exposed surface of the dry paint layer when the pressure-sensitive adhesive layer adheres the laminate to the substrate surface under application of pressure and the release liner is  
25            peeled away from the dry paint layer,

             the laminate adapted for being self-wound into a roll with the pressure-sensitive adhesive layer in contact with the adhesive release coat layer,

             the adhesive release coat layer and the pressure-  
30            sensitive adhesive layer having an unwind release force between them which is lower than a carrier release force between the matte release coat and the dry paint layer, such that the adhesive release coat preferentially releases the liner from contact with the pressure-sensitive adhesive layer  
35            when unwinding the laminate from its roll form, while the

matte release coat maintains contact with the dry paint layer when the laminate is being unwound from its roll form;

5            in which the pressure-sensitive adhesive is selected from the group consisting of a crosslinked acrylic resinous material, an internally crosslinked acrylic emulsion, and a crosslinked copolymer emulsion of butyl acrylate and ethyl hexyl acrylate.

10           2.    The article according to claim 1, wherein an unwind force required to unwind the adhesive release coat layer from the adhesive layer is less than about 150 grams per two inches; wherein said laminate is unwound at a rate of about  
15           300 inches per minute and wherein said laminate is unwound at an angle of about 90°.

            3.    The article according to claim 2, wherein said unwind force is less than about 100 grams per two inches.

20           4.    The article according to claim 3, wherein said unwind force is from about 30 to about 70 grams per two inches.

            5.    The article according to claim 1, wherein a carrier  
25           release force between said matte release coat and said dry paint layer is from about 20 to about 180 grams per two inches; wherein said release liner is peeled from said dry paint layer at a rate of about 300 inches per minute and wherein said release liner is peeled from said dry paint layer  
30           at an angle of at least about 90 degrees.

            6.    The article according to claim 5, wherein said carrier release force is from about 30 to about 150 grams per two inches.

7.    The article according to claim 6, wherein said  
carrier release force is from about 40 to about 120 grams per  
5        two inches.

      8.    The article according to claim 1 in which the level  
of gloss transferred from the matte release liner is less than  
about 35% at 85°.

10        9.    The article according to claim 1 in which the matte  
release coat has a hardened state at room temperature and is  
made from a resinous material that contains (1) a surfacing  
component that forms a matte release surface, (2) an adhesion  
15        component for releasably adhering the matte release surface to  
the dry paint layer, and (3) a release component that releases  
the matte release surface from contact with the dry paint  
layer at room temperature to transfer the matte surface finish  
from the matte release surface to the exposed surface of the  
dry paint layer.

20        10.   The article according to claim 1 in which the  
carrier release force is maintained at a level greater than  
the unwind release force for unwind release rates from about 6  
to about 300 inches per minute for a 2 inch wide self-wound  
25        laminate.

      11.   The article according to claim 1 in which the  
carrier release force is maintained at a level within the  
range from about 45 to about 65 grams per two inches.

30        12.   The article according to claim 11 in which the  
unwind release force is maintained at a level within the range  
from about 20 to about 40 grams per two inches over a range of  
liner release rates from about 12 to at least about 60 inches  
per minute.

5            13. The article according to claim 1 in which the adhesive is repositionable with a suppressed initial tack level that undergoes subsequent buildup of adhesion due to passage of time sufficient to permanently bond the dry paint layer to the substrate.

10           14. The article according to claim 1 in which the matte release coat comprises a crosslinked resinous material bonded to the release liner and having a micro-roughened surface that transfers the matte surface to the dry paint layer.

15           15. The article according to claim 14 in which the dry paint layer comprises a pigmented color coat layer and a transparent outer clear coat layer bonded to the color coat and in contact with the matte release coat layer on the release liner, the matte surface being transferred to the  
20 transparent outer clear coat layer.

            16. The article according to claim 15 in which the transparent outer clear coat layer comprises an acrylic resinous material.

25           17. The article according to claim 16 in which the pressure-sensitive adhesive layer comprises a crosslinked acrylic resinous material.

30           18. The article according to claim 1 in which the dry paint layer comprises a pigmented color coat layer and a transparent outer clear coat layer bonded to the color coat and in contact with the matte release coat layer on the release liner, the matte surface being transferred to the transparent outer clear coat layer, and in which the  
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transparent outer clear coat layer comprises an acrylic resinous material.

5            19. The article according to claim 1 in which the matte release coat comprises a thermoset resinous material containing a dispersed particulate material for transferring a low gloss surface to the dry paint layer.

10           20. The article according to claim 1 in which the matte release coat formulation comprises a resinous material substantially in the absence of a silicone release agent or a wax component.

15           21. The article according to claim 1 in which the carrier release force is in excess of the unwind release force for release force rates up to about 100 inches per minute.

20           22. A self-wound multi-layer laminate for applying a layer of color to a substrate surface, the laminate comprising:

          a dry paint layer comprising a color layer which includes a binder and a pigment, the dry paint layer having an upper surface and a lower surface,

25           a pressure-sensitive adhesive layer overlying the upper surface of the dry paint layer and adapted for adhering the laminate to a substrate surface at room temperature, the pressure-sensitive adhesive comprising a crosslinked acrylic resinous material;

30           a release liner overlying the lower surface of the dry paint layer, the release liner having a matte release coat releasably adhered to the lower surface of the dry paint layer, and an adhesive release coat layer on a side of the release liner opposite from the dry paint layer, the release liner and the release coat removable from the dry paint layer  
35           at room temperature,

the pressure-sensitive adhesive layer having a suppressed initial level of tack at room temperature that allows the laminate to adhere to a substrate and be repositioned thereon followed by removal of the matte release liner from the dry paint layer, the adhesive layer undergoing subsequent buildup of tack due to the passage of time sufficient to permanently bond the dry paint layer to the substrate;

the matte release coat transferring a matte finish to an exposed surface of the dry paint layer when the pressure-sensitive adhesive layer adheres the laminate to the substrate surface under application of pressure and the release liner is peeled away from the dry paint layer,

the laminate adapted for being self-wound into a roll with the pressure-sensitive adhesive layer in contact with the adhesive release coat layer,

the adhesive release coat layer and the pressure-sensitive adhesive layer having an unwind release force between them which is lower than a carrier release force between the matte release coat and the dry paint layer, such that the adhesive release coat layer preferentially releases the liner from contact with the pressure-sensitive adhesive layer when unwinding the laminate from its roll form, while the matte release coat maintains contact with the dry paint layer when the laminate is being unwound from its roll form,

in which said carrier release force is from about 30 to about 150 grams per two inches.

23. The article according to claim 22, wherein said carrier release force is from about 40 to about 120 grams per two inches.

24. The article according to claim 22 in which the level of gloss transferred from the matte release liner is less than about 35% at 85°.

5        25. The article according to claim 22 in which the carrier release force is maintained at a level greater than the unwind release force for unwind release rates from about 6 to about 300 inches per minute for a 2 inch wide self-wound laminate.

10       26. The article according to claim 22 in which the carrier release force is maintained at a level within the range from about 45 to about 65 grams per two inches.

15       27. The article according to claim 22 in which the adhesive comprises a crosslinked copolymer emulsion of butyl acrylate and ethyl hexyl acrylate.

20       28. The article according to claim 22 in which the matte release coat comprises a crosslinked resinous material bonded to the release liner and having a micro-roughened surface that transfers the matte surface to the dry paint layer.

25       29. The article according to claim 22 in which the pressure-sensitive adhesive comprises a crosslinked copolymer emulsion of butyl acrylate and ethyl hexyl acrylate.

30       30. The article according to claim 29 in which the acrylic resinous adhesive comprises an internal crosslinking agent.

35       31. The article according to claim 22 in which the matte release coat comprises a crosslinked resinous material bonded to the release liner and having a micro-roughened surface formed by a dispersed fine particulate material that transfers the matte surface to the dry paint layer.

40       32. A self-wound decorative dry paint transfer laminate comprising a layer of dry paint, a pressure-sensitive adhesive

layer on one side of the dry paint layer adapted for room temperature adhesion to a substrate surface, and a release liner in releasable contact with the dry paint layer on a side opposite from the pressure-sensitive adhesive, one side of the release liner having bonded thereto a matte release coat layer that contacts the dry paint layer, the matte release coat layer releasably adhering to the dry paint layer but adapted to transfer a matte surface finish to the dry paint layer when the release liner is removed from the dry paint layer, the dry paint layer comprising a pigmented color coat layer and a transparent outer clear coat layer bonded to the color coat and in contact with the matte release coat layer on the release liner, the matte surface being transferred to the transparent outer clear coat layer, an opposite side of the release liner having an adhesive release coat layer that contacts the pressure-sensitive adhesive when the laminate is in a self-wound form, the adhesive release coat layer preferentially releasing the liner from the pressure-sensitive adhesive when the laminate is unwound while the liner maintains adhesion to the matte release coat layer, the pressure-sensitive adhesive comprising a crosslinked acrylic resinous material, the matte release coat layer having a micro-roughened surface for transferring a matte surface finish to the dry paint layer at room temperature with a surface gloss of less than about 35% at 85°.

33. The article according to claim 32 in which the transparent outer clear coat layer comprises an acrylic resinous material.

34. The article according to claim 32 in which the matte release coat comprises a thermoset resinous material containing a dispersed particulate material for forming the matte surface finish.



35. The article according to claim 32 in which the adhesive layer comprises a non-tackified acrylic emulsion.

5        36. The article according to claim 32 in which the release force between the adhesive layer and the release liner is less than the release force between the release liner and the dry paint layer.

10       37. The article according to claim 36 in which the transparent outer clear coat layer comprises an acrylic resinous material, the matte release coat comprises a thermoset resinous material containing a dispersed particulate material for forming the matte surface finish, and the  
15       adhesive layer comprises a non-tackified acrylic emulsion.

38. The article according to claim 32 in which the gloss level is from about 25% to about 30% at 85°.

20       39. A self-wound multi-layer laminate for applying a layer of color to a substrate surface, the laminate comprising:

      a dry paint layer comprising a color layer which includes a binder and a pigment, the dry paint layer having an upper  
25       surface and a lower surface,

      a pressure-sensitive adhesive layer overlying the upper surface of the dry paint layer and adapted for adhering the laminate to a substrate surface at room temperature;

      a release liner overlying the lower surface of the dry  
30       paint layer, the release liner having a dry paint release coat releasably adhered to the lower surface of the dry paint layer, and an adhesive release coat layer on a side of the release liner opposite from the dry paint layer, the release liner and the dry paint release coat removable from the dry  
35       paint layer at room temperature,

the dry paint release coat transferring a controlled surface finish to an exposed surface of the dry paint layer when the pressure-sensitive adhesive layer adheres the laminate to the substrate surface under application of pressure and the release liner is peeled away from the dry paint layer,

the laminate adapted for being self-wound into a roll with the pressure-sensitive adhesive layer in contact with the adhesive release coat layer,

the adhesive release coat layer and the pressure-sensitive adhesive layer having an unwind release force between them which is lower than a carrier release force between the dry paint release coat and the dry paint layer, such that the adhesive release coat preferentially releases the liner from contact with the pressure-sensitive adhesive layer when unwinding the laminate from its roll form, while the dry paint release coat maintains contact with the dry paint layer when the laminate is being unwound from its roll form,

in which the pressure-sensitive adhesive is selected from the group consisting of a crosslinked acrylic resinous material, an internally crosslinked acrylic emulsion, and a crosslinked copolymer emulsion of butyl acrylate and ethyl hexyl acrylate.

40. The article according to claim 39 in which the adhesive is repositionable with a suppressed initial tack level that undergoes subsequent buildup of adhesion due to passage of time sufficient to permanently bond the dry paint layer to the substrate.

41. The article according to claim 39 in which the dry paint release coat comprises a crosslinked resinous material

bonded to the release liner and having a surface that transfers a controlled surface gloss to the dry paint layer.

5            42. The article according to claim 39 in which the dry paint layer comprises a pigmented color coat layer and a transparent outer clear coat layer bonded to the color coat and in contact with the dry paint release coat layer on the release liner, the controlled surface gloss being transferred  
10 to the transparent outer clear coat layer.

          43. The article according to claim 39 in which the transparent outer clear coat layer comprises an acrylic resinous material.  
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          44. A self-wound multi-layer laminate for applying a layer of color to a substrate surface, the laminate comprising:

          a dry paint layer comprising a color layer which includes  
20 a binder and a pigment, the dry paint layer having an upper surface and a lower surface,

          a pressure-sensitive adhesive layer overlying the upper surface of the dry paint layer and adapted for adhering the laminate to a substrate surface at room temperature, the  
25 pressure-sensitive adhesive comprising a crosslinked acrylic resinous material;

          a release liner overlying the lower surface of the dry paint layer, the release liner having a dry paint release coat releasably adhered to the lower surface of the dry paint  
30 layer, and an adhesive release coat layer on a side of the release liner opposite from the dry paint layer, the release liner and the release coat removable from the dry paint layer at room temperature,

          the pressure-sensitive adhesive layer having a suppressed  
35 initial level of tack at room temperature that allows the

laminate to adhere to a substrate and be repositioned thereon followed by removal of the release liner from the dry paint layer, the adhesive layer undergoing subsequent buildup of tack due to the passage of time sufficient to permanently bond the dry paint layer to the substrate;

the dry paint release coat transferring a controlled surface finish to an exposed surface of the dry paint layer when the pressure-sensitive adhesive layer adheres the laminate to the substrate surface under application of pressure and the release liner is peeled away from the dry paint layer,

the laminate adapted for being self-wound into a roll with the pressure-sensitive adhesive layer in contact with the adhesive release coat layer,

the adhesive release coat layer and the pressure-sensitive adhesive layer having an unwind release force between them which is lower than a carrier release force between the dry paint release coat and the dry paint layer, such that the adhesive release coat layer preferentially releases the liner from contact with the pressure-sensitive adhesive layer when unwinding the laminate from its roll form, while the dry paint release coat maintains contact with the dry paint layer when the laminate is being unwound from its roll form,

in which said carrier release force is from about 30 to about 150 grams per two inches.

45. The article according to claim 44, wherein an unwind force required to unwind the adhesive release coat layer from the adhesive layer is less than about 150 grams per two inches; wherein said laminate is unwound at a rate of about 300 inches per minute and wherein said laminate is unwound at an angle of about 90°.

46. The article according to claim 44, wherein said unwind force is less than about 100 grams per two inches.

5        47. The article according to claim 44, wherein said unwind force is from about 30 to about 70 grams per two inches.

10       48. The article according to claim 44, wherein a carrier release force between said matte release coat and said dry paint layer is from about 20 to about 180 grams per two inches; wherein said release liner is peeled from said dry paint layer at a rate of about 300 inches per minute and  
15       wherein said release liner is peeled from said dry paint layer at an angle of at least about 90 degrees.

49. The article according to claim 44, wherein said carrier release force is from about 30 to about 150 grams per two inches.

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